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(71)Applicant : FUJITSU LTD

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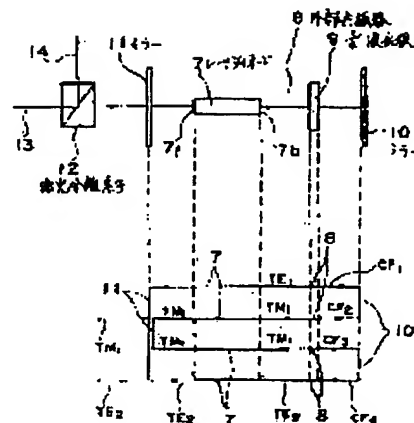
(72)Inventor : SHIRASAKI MASATAKA

(54) LASER DEVICE

(57)Abstract:

PURPOSE: To take out the light output of two modes from one semiconductor laser with stability by arranging a 1/4 wavelength plate in an external resonator of semiconductor laser.

CONSTITUTION: When the light of TE1 mode of straight polarization (TE wave) is emitted from a back part 7b of a laser diode 7 and it enters into a 1/4 wavelength plate 9, the projected light from the plate 9 becomes circularly polarized light CF1 and is reflected by a rear mirror to become polarized light CF2. Then the light enters into the plate 9 again from the back and is projected by the crossing component with the TE wave, i.e., TM wave. The light passes through the diode 7 and the plate 9 to become circularly polarized light CF3. The light CF3 reflected by the mirror 10 enters into the plate 9 to become TE2 wave and passes the diode 7 and is emitted from the mirror 11. Namely, TE wave projected from the diode 7 reciprocates to the plate 9 and becomes TM wave. It becomes a laser of one period by two reciprocation. And by one reciprocation, the light becomes the polarized light state which crossing each other.



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